Why Postdoc?
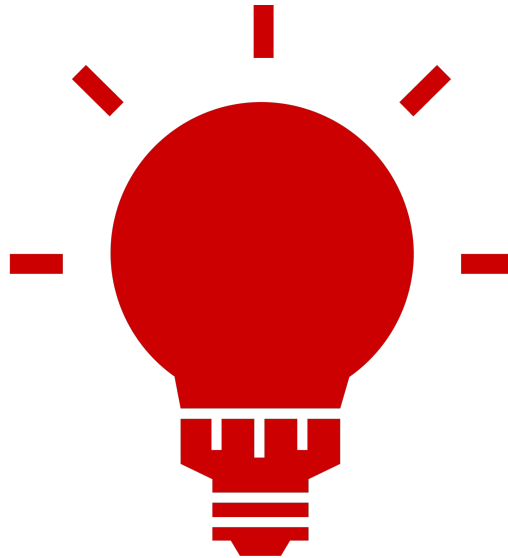
How to identify postdoc opportunities & use your training period wisely

Chris Smith, PhD

What is a postdoc?

- An individual holding a doctoral level degree who is engaged in a **temporary period** of **mentored** research and/or scholarly training for the purpose of **acquiring the professional skills** needed to **pursue a career path of his or her choosing.** *Definition from the National Postdoctoral Association*

- The mentor & training environment matters immensely for the postdoc

https://www.nationalpostdoc.org/

Core Competencies of Postdoctoral Training

1. Discipline-specific conceptual knowledge

2. Research skill development

3. Communication skills

4. Professionalism

5. Leadership and management skills

6. Responsible conduct of research

https://www.nationalpostdoc.org/

DISCIPLINE-SPECIFIC CONCEPTUAL KNOWLEDGE

An overall understanding of implications of work on broader field, the importance of innovation & creativity, & grasp of cultural, language & technical discipline-specific knowledge.

- Analytical approach to defining scientific questions
- Design of scientifically testable hypotheses
- Broad based & cross-disciplinary knowledge acquisition
- Interpretation & analysis of data

RESEARCH SKILL DEVELOPMENT

Ensure that postdocs are adequately equipped to carry out independent research, whether in bench- or non-bench related professions.

- Research techniques & laboratory safety
- Experimental design
- Data analysis & interpretation
- Statistical analysis
- Effective search strategies & critical evaluation of the literature
- Principles of the peer review process

COMMUNICATION SKILLS

Postdocs should master communication skills which ensure that messages are heard & understood by the appropriate audience.

- Writing (scientific publications, grants/applications, career documents)
- Speaking (presentations, interviews)
- Teaching
- Interpersonal Skills (style, negotiation, reviews/feedback, networking, conflict resolution, media management)

PROFESSIONALISM

Postdocs instill and enforce the virtues of honor, integrity, compassion, cooperation, reliability, &enhance the perception of this work in society.

- Workplace professionalism (diverse teams)
- Institutional professionalism (connecting at/across/with institutions as employees or representatives)
- Collegial professionalism (engaging as a citizen to scholarship)
- Universal professionalism

LEADERSHIP & MANAGEMENT SKILLS

Postdocs should understand which leadership styles are appropriate for any given time & situation increase performance & productivity. Leaders must also be able to competently manage projects, budgets, & staff.

- Management Skills (research staff management, project management, data & resource management, general management)
- Leadership Skills (Identifying & clarifying goals, motivating/inspiring others, serving as a role model)

RESPONSIBLE CONDUCT OF RESEARCH (RCR)

The pursuit & advancement of knowledge depend on openness, honesty, objectivity, & trust. Therefore, postdocs are responsible for upholding &engaging the ethical norms of their fields.

- Data ownership & sharing
- Publication practices & responsible authorship
- Research with human subjects or animals (where applicable)
- Identifying & mitigating research misconduct
- Conflicts of interest

Resources from the NPA

YOU can join the NPA as a FREE affiliate member through NC State's sustaining membership. [Learn more](#)

[NPA resources include](#):

- **A Postdoc's Guide to the Postdoc Timeline**
- **A Postdoc's Guide to Career Development**
- **Guide to Using an Individual Development Plan**
- **A Postdoc's Guide to Mentorship**
- **[myPostdoc Webinar Archives](#) (on a range of career topics)**
- **And More!**

https://www.nationalpostdoc.org/page/Postdocs_Resource_Library

Most postdocs are obtained via networking

Distribution of NC State Postdoc Job Postings, June 2018- July 2021

External
43.3%

Internal
56.7%
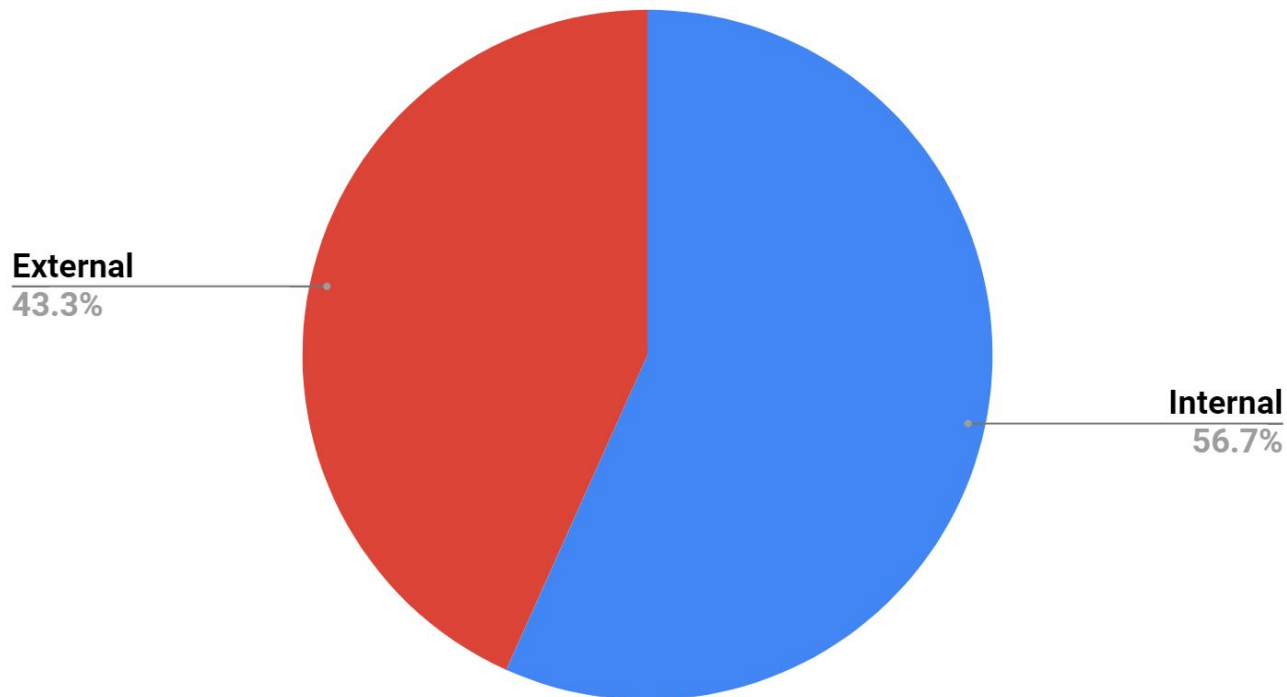
Identifying prospective postdoc mentors/labs

- Doing science you are interested in
- Working with a technique or process you are interested in learning
- Have funding for you for multiple years
- Current trainees say good things about the environment
- Postdoc benefits and resources at the institution meet your needs

Check on the PI's grants via funding databases

National Institutions of Health (NIH Reporter)

National Science Foundation Award Search

US Department of Agriculture CRIS

- Recent National Institute of Food & Agriculture (NIFA) Awards

US Department of Energy Portfolio Analysis System

US Department of Defense Grant Awards

NASA Grant Status Form

Questions to Ask Potential Groups

For graduate students and/or postdocs in the group you are considering:

- How have you found the environment here? Institutional, Departmental, research group?
- What should I know about how Dr. X interacts with his/her postdocs?

For former graduate students and/or postdocs in the group:

- How was Dr. X as a mentor?
- Did they assist and support you in your career transition?

Questions to Ask Potential Groups

For the PI/faculty lead:

- How long do you anticipate being able to support this postdoctoral position financially (1 year? 2 years?)?
- Are you supportive of your postdocs applying for independent funding (fellowships, transition awards, etc...)?
- What is your management & mentoring style?
- What career paths have some of your past postdocs pursued?
- What resources are available in the department, college, or university to support me in my career & professional development?

Create a training & career plan - Individual Development Plan (IDP)

An IDP is a dynamic self-evaluation and career exploration tool that can be used for setting goals for research projects, skills development, and career planning. It is your private written list of objectives mapped to a timeline. - https://grad.berkeley.edu/idp/

An IDP or training plan is now required for NSF grants supporting postdocs and in progress reports submitted via RPPR to NIH, respectively.

The 2 primary features of any **IDP** should be:

(1) **professional development**, including research development, which helps the trainee become a productive and independent researcher

(2) **career development**, which provides guidance and resources for identifying and achieving the *next career milestone*

This plan needs to be both focused on your current skill development AND help prepare you for a future career of your choosing: academic or otherwise.

Further Reading on the Value of IDPs

IDPs can allow you to have important career conversations with your supervisor

[A cross-sectional study of the use and effectiveness of the IDP among doctoral students](#)

[Use and effectiveness of the IDP among postdoctoral researchers](#)

[Yearly Planning Meetings: Individualized Development Plans Aren't Just More Paperwork](#) (great to share with your supervisor!)

IDP Templates

NC State OPA IDP

https://go.ncsu.edu/ncsu-opa-idp-form

Stanford Biosciences IDPs (for Year 1, 2, 3-5 PhDs/postdocs)

https://biosciences.stanford.edu/current-students/idp/forms/

Plans can also be built in ImaginePhD, myIDP, & ChemIDP

Postdoc Academy: Great Online Program to Help in the Postdoc Transition & Planning for Your Career

https://www.postdocacademy.org/explore/

- *Succeeding as a Postdoc* (first course)
  - This course helps develop strategies to successfully navigate postdoc life, from orientation to next career step.
- *Building Skills for a Successful Career* (second course)
  - This course provides foundational skills to help postdocs find success in their chosen career path.

Thank You

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